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specimens illustrating this point was astonishingly large and rich, and his death will be a very great loss to this little cultivated and little known branch of natural science.

Three hundred and eighty-seventh meeting.

November 9, 1853. — QUARTERLY MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read a letter from Professor Mittermaier, of Heidelberg, acknowledging his election as Foreign Honorary Member of the Academy; also letters from Rev. Thomas Hill, Dr. S. Parkman, and Dr. B. E. Cotting, severally acknowledging their election as Fellows of the Academy.

On motion of Professor Peirce, it was

" *Voted*, That the Academy hold meetings for scientific discussion on the last Tuesday of every month, at their Hall."

Dr. B. A. Gould, Jr. announced, that a complete catalogue of the books and pamphlets in the Academy's library had been made by the Recording Secretary, and reported sundry regulations made by the Committee on the Library for the circulation, return, and safe-keeping of the books.

Mr. B. A. Gould alluded to the recent death of M. Arago, a Foreign Honorary Member of the Academy, and offered the following preamble and resolutions: —

" Whereas, when men who have conferred benefits upon their race, or extended the domain of science, are removed from the world, it is but fitting that those who appreciate their services, and especially public bodies, should join in doing honor to their memory, —

" *Resolved*, That the Academy has received information of the decease of its illustrious member, Arago, with a profound sense of the loss sustained by science and by humanity, and desires thus to express its sentiments of respect for the memory of the distinguished scientific investigator and philanthropist.

" *Resolved*, That a copy of these resolutions be transmitted to the family of the deceased."

The resolutions were unanimously adopted.

Professor Agassiz made a verbal communication on some new species of cartilaginous fishes which he had discovered on the coast of the United States, which were especially interesting for the study of the relations existing between fossil and living types. America contrasts strongly with Europe in the number of living species belonging to genera of animals which also exist in a fossil state; the old types are so much more numerous here, that this continent to the paleontologist has quite an old-fashioned appearance.

The Port Jackson Shark is the only type of its family now represented by a living species in the Old World. He had found on our coast eight genera of cartilaginous fishes not noticed before. The genus *Carcharias* is not found fossil, and the living species are few. The genus *Odontaspis*, found fossil as low as the chalk, has two representatives on our coast, one in Long Island Sound, the other on the coast of South Carolina; to this genus he thinks the *Squalus macrodon* of Mitchell belongs. To this genus, also, belong most of the fossil teeth of our tertiary deposits; many of these, previously considered as belonging to the genus *Lamna*, he was now, from examination of living representatives, able to refer to their true genus, *Odontaspis*. The old genus *Lamna* he had divided into *Lamna* and his genus *Oxyrhina*. Of the genus *Galeocerdo*, geologically very important, with teeth serrated and curved backwards, he had obtained a species as far south as South Carolina. Fossils of this genus are found in deposits as early as the cretaceous; the genus *Galeus* differs in the serrations of its teeth. The large teeth found at Gay Head and Marshfield belong to the genus *Carcharodon*. Dr. Andrew Smith found a representative of this genus at the Cape of Good Hope. Professor Agassiz had received a jaw of a living species from Nantucket, and some teeth from Cape Cod, belonging to this genus. This, then, is another of the old types found on our coast. It differs generically from *Carcharias;* the differences do not depend so much on the position of the teeth in the jaw, as on the structure of the teeth, which are hollow in *Carcharias* and full in *Carcharodon*, though a careful comparison will reduce the number of established species of fossil Carcharodons. He had also discovered new genera of *Scates*. Of the three fossil genera, *Myliobates*, *Zygobates*, and *Aëtobates*, the first is found living in the Old World, while the second and third are unknown there, except as fossils; all these genera have been found living in North and South America. Of the genus *Raia*, of which there are vast numbers in Europe, the number is diminished in America by at least one third.

Professor Peirce made a communication on a new view of the fundamental principles of Analytic Mechanics.

Three hundred and eighty-eighth meeting.

November 17, 1853. — ADJOURNED QUARTERLY MEETING.

The PRESIDENT in the chair.

The time of this meeting was occupied in the transaction of business.

A communication was received from Mr. C. O'Brian, requesting permission to publish in a scientific periodical, about to be established in Cambridge, the proceedings of the Academy. The communication was referred to the Committee of Publication.

Three hundred and eighty-ninth meeting.

November 29, 1853. — SECOND NOVEMBER MEETING.

DR. CHARLES BECK in the chair.

Dr. Burnett made a communication on the development of organs, especially of those of glandular structure; in which he traced the progress from a mass of cells, arranging themselves in linear series, through the various stages of lateral saccations or diverticula, and the dichotomous ramifications dividing and subdividing to form the intricate structure of the organs. For instance, the ureter, first formed, undergoes this multiplied ramification till it forms the glandular structure of